University of Nebraska

Early Diagnosis of Pancreatic Cancer

Objective

Develop diagnostic tests for the early detection of pancreatic cancer by improving the utility of the CA19–9 and related tests and by using proteomics techniques to identify novel proteins that are expressed in the sera and body fluids of patients with premalignant lesions of the pancreas (pancreatic intraepithelial neoplasms – PanIN).

Program Description

Ducal pancreatic adenocarcinoma is the fifth most common cause of death due to cancer in the United States; more than 80% of patients die within one year of diagnosis. The poor outcome has been attributed in part to the advanced stage of disease at diagnosis and the aggressive nature of the disease. Detection of premalignant lesions or early stage cancers may improve outcome.

Specific Aims

- Utilize newly developed and to be developed antibodies against mucin core proteins to develop an improved serum assay for pancreatic adenocarcinoma.
- Develop and utilize a set of monoclonal antibodies that recognize serum forms of distinct mucin core proteins to improve the diagnostic capability of the CA19–9 type tests for nonmalignant, premalignant and malignant lesions of the pancreas, and evaluate the capability of the test to discriminate pancreatic cancer from other adenocarcinomas (colon and other GI, breast, lung, prostate).
- Discover biomarkers of pancreatic intraepithelial neoplasia (PanIN) by utilizing mouse models of PanIN, genetically defined ductal cell lines representative of PanIN, and serum obtained from patients with pancreatic ductal adenocarcinoma (PDA) and individuals at risk for the development of PDA.